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Yield of a 46-Year-Old Tamarack Plantation

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ABSTRACT.—Reports on the survival and growth of a 46-year-old tamarack plantation on an upland site.

KEY WORDS: *Larix laricina*, *Pinus banksiana*, upland soil type.

Tamarack (*Larix laricina*) occupies about 1 million acres in the Lake States. It occurs alone or in mixed stands with black spruce (*Picea mariana*) on organic soils. It also grows occasionally on mineral soils along the edges of peatlands.

To learn more about tamarack planting, especially on mineral soil, we studied a 0.7-acre plantation on the Chippewa National Forest in north-central Minnesota. The plantation is on a well-drained, deep sandy soil of Type 8678, Menahga and Graycalin soils, with 0- to 8-percent slope. We found no evidence of damage by the Larch sawfly (*Pristiphora erichsonii* (Hartig)).

The stand was 46 years old in August 1987. The original planting records have been destroyed, so there is no record of the seed source, the source of the seedlings, or their age when planted. The area had been furrowed and then planted to tamarack and jack pine (*Pinus banksiana*) at 4- by 4-foot spacings. Site index curves for plantation tamarack are not available. The jack pine had a height of 75 feet and a site index of 80 feet. The dominant jack pine trees were the same height as the dominant tamarack.

We established three 0.10-acre plots on the plantation in August 1987. Diameters and total height were measured to determine volumes (table 1). The diameter distribution is shown in table 3. The very close spacing apparently has slowed diameter growth.

Seed was collected from one tree that was cut to determine age, and a germination test was run. Results of the germination test are shown in table 2. Less than half of the seeds germinated within 2 weeks.

Even though this plantation is small, it shows that tamarack will do well on mineral soils, even on a well-drained site.

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Table 1.—*Tree data from three 0.10-acre plots on a 46-year-old tamarack plantation*

Plot number	Larch						Other species: aspen, jack pine, balsam fir, white spruce					Total			
	Number of trees	$\overline{D}$	Basal area	Tree height	Volume	Cords	Number of trees	$\overline{D}$	Basal area	Volume	Cords	Number of trees	Basal area	Volume	Cords
		in		*ft*	*ft³*			*in*		*ft³*				*ft³*	
1	790	5.18	115.70	75.2	3,554	35.0	120	7.29	34.77	1,075	9.9	910	150.47	4,629	44.9
2	630	4.88	81.90	74.0	2,476	24.1	170	8.40	65.39	1,977	19.1	800	147.29	4,453	43.2
3	710	4.88	92.37	76.4	2,883	28.2	150	8.90	64.85	2,024	19.6	860	157.22	4,907	47.8
Average	710	4.98	96.66	75.2	2,971	29.1	147	8.20	55.00	1,692	16.2	857	151.66	4,663	45.3

Table 2.—*Three 0.10-acre plots*

Diameter class (Inches)	Species				
	Larch	Aspen	White spruce	Jack pine	Balsam fir
2	7		1		1
3	46				
4	51	7			
5	41	1			
6	36	4			
7	25	5			
8	8	9			
9		3			
10		5			
11		2			
12		3			
13				1	
14		1			
Total	214	40	1	1	1

Table 3.—*Tamarack seeds germinated in a 1-month test*

Total seed germinated	Seed cutting test		Percent germination
	Filled	Empty	
24	5	21	48
23	7	20	46
18	8	24	36

No stratification or scarification was used.

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